

**Safety Evaluation by the DOE Regulatory Unit (RU)
of the Proposed Authorization Basis Amendment Request,
ABAR-W375-00-00011, Revision 0,
to the Integrated Safety Management Plan and
the Safety Requirements Document
(DOE Contract DE-AC27-96RL13308)**

1.0 INTRODUCTION

The River Protection Project Waste Treatment Plant (RPP-WTP) facility that will treat and vitrify radioactive waste at the Hanford Site is described in the above referenced contract. The authorization basis for RPP-WTP requires the Contractor, BNFL Inc., to maintain an Integrated Safety Management Plan (ISMP) and a Safety Requirements Document (SRD). The ISMP documents the process by which laws, regulations, and standards applicable to the nuclear, radiological, and process safety aspects of the RPP-WTP are incorporated into programs for facility design, construction, operation, and deactivation. The SRD defines the standards used by the contractor to design, construct, and operate the facility. Along with other authorization basis documents, these two documents create a framework to ensure adequate protection is provided to workers, the public, and the environment.

BNFL Inc. (BNFL) submitted an authorization basis amendment request (ABAR) proposing changes to both documents. Such submittals are required in accordance with the requirements of RL/REG-97-13, *Regulatory Unit Position on Contractor Initiated Changes to the Authorization Basis*, Revision 6.

2.0 BACKGROUND

The ABAR identifies the affected authorization basis (AB) documents as ISMP Sections 2.3 and 3.9.1.2 and SRD Vol. II Safety Criterion 2.0-3. The ABAR states that "These ISMP sections are currently cited in SRD Safety Criterion 2.0-3 as implementing standards; the citation will be replaced with G-10 CFR 835/B2. Also, ISMP Section 3.9.1.2 is being revised to clarify the project's approach for documenting ALARA design features."

The two issues addressed by the ABAR are summarized below:

- **ISMP Text Change**

ISMP Section 3.9.1.2 is proposed to be reworded to indicate that ALARA features are shown on applicable facility layout drawings and other design documents. The ABAR states that the proposed revision "Clarifies statement in ISMP Section 3.9.1.2 to note that ALARA features are shown on applicable facility layout drawings and other design documents – not on one specific "set of radiation protection drawings."

The ABAR states further that "Although it was never intended that a limited, defined set of 'Radiation Protection' drawings be developed, the language in the ISMP could be construed to require such a 'set.' The variety of ALARA design features such as those specifically listed in the ISMP is such that they cannot all be depicted on a single 'set' of

drawings. The revision to ISMP Section 3.9.1.2 clarifies that the listed ALARA design features will be shown on applicable facility layout drawings and other design documents."

The ABAR proposes that the ISMP text be changed as indicated below:

~~"A set of radiation protection drawings is prepared showing the~~ features such as facility zoning, ~~and the~~ minimum shielding requirements, and access control features will be documented on applicable. ~~The requirements are incorporated into the~~ facility layout drawings and civil and structural other design documents. ...

3.9.1.3 ...The radiation monitoring locations are will be shown on ~~the radiation protection~~ drawings developed during detailed design."

This text change clarifies the original intent of the ISMP section, which addressed how radiation protection features incorporated into the design are to be documented. This change addresses Deficiency Report DR-W375-99-QA00065, which is related to QA Surveillance Report SV-W375-QA00007 (CCN 00401).

- **Change to SRD**

The ABAR states that this revision "Replaces reference to ISMP Sections 2.3 and 3.9.1.2 as implementing standards in SRD Vol.II Safety Criterion 2.0-3 with G-10 CFR 835/B2, 'Occupational ALARA Program'."

The ABAR states that "G-10 CFR 835/B2 is more responsive to the SRD safety criterion than the ISMP sections it replaces." This change reflects the effort that the contractor is making to replace references to the ISMP as implementing standards in the SRD.

The ABAR proposes that the SRD Safety Criterion 2.0-3 be changed as indicated below:

Safety Criterion: 2.0-3

In addition to the dose limits specified for the public in Safety Criterion 2.0-1 Table 2-1, the dose in any unrestricted area from external sources shall not exceed 0.002 rem in any one hour.

Implementing Codes and Standards:

~~BNFL 5193 ISP-01 TWRS-P Project Integrated Safety Management Plan~~
~~Section: 2.3 Compliance with 10 CFR 835, "Occupational Radiation Protection"~~
~~Section: 3.9.1.2 Radiation Shielding and Access Control Features~~

G-10 CFR 835/B2 Occupational ALARA Program

3.0 EVALUATION

The RU reviewed the proposed ABAR requesting a change to the wording in Section 3.9.1.2 of the ISMP and the implementing standard identified for Safety Criterion 2.0-3 of the SRD. The ABAR proposes replacing ISMP Sections 2.3 and 3.9.1.2 with DOE implementation guide G-10 CFR 835/B2. In accordance with RL/REG-97-13, Rev. 6, the ABAR provided an evaluation to demonstrate that the revised SRD would continue to identify a set of standards that would provide adequate safety, comply with all applicable laws and regulations, and conform to the top-level safety standards. The proposed ABAR:

- Provides the changes that will be made to the text of Section 3.9.1.2 of the ISMP.
- Identifies SRD Safety Criterion 2.0-3 as being affected.
- Identifies the section (ALARA Design Review) of G-10 CFR 835/B2 considered relevant to Safety Criterion 2.0-3.
- Proposes that the current implementing standard for SRD Safety Criterion 2.0-3 be deleted and changed to implementing guide G-10 CFR 835/B2, "Occupational ALARA Program."
- Includes no additional text revisions to the SRD.

3.1 Regulatory Unit Evaluation Against Applicable Information

- **ISMP Text Change**

The RU reviewed the rewording of Section 3.9.1.2 of the ISMP and determined that the change appropriately clarified the meaning of the section. The modified text makes it apparent that the contractor does not intend on creating a specific "set of radiation protection drawings" solely for the purpose of identifying ALARA design features. The commitment to ALARA design features appearing on all applicable drawings is clearly stated in the suggested change to the text. The RU reviewers did not identify a top-level standard on any additional SRD requirements necessitating a specific set of radiation protection drawings.

- **Change to SRD**

The content of G-10 CFR 835/B2 adequately supports BNFL's safety evaluation. However, G-10 CFR 835/B2 is an outdated document which endorses the use of a superseded federal regulation (see section 3.3 of this evaluation).

3.2 Adequate Safety

- **ISMP Text Change**

The ABAR states that "The wording change to ISMP Section 3.9.1.2 maintains BNFL Inc.'s commitment to document ALARA design features such as facility radiation zoning, minimum shielding requirements and access control features; the only change is that these features will not be portrayed on one set of radiation protection drawings but rather on applicable facility layout drawings and other design documents. Therefore, this change maintains adequate safety."

The RU reviewed the proposed text change and concluded that the revision provides a basis for maintaining adequate safety because safety is not affected by the approach taken to document ALARA design features on the facility drawings.

- **Change to SRD**

The ABAR states that "This change does not alter the wording of SRD Vol. II Safety Criterion 2.0-3; therefore, BNFL Inc. maintains its commitment to comply with the applicable portions of WAC 246-221-060(1) and WAC 246-247-040(2), i.e., that maximum dose rate from external sources in any unrestricted area will not exceed 0.002 rem in any one hour."

The RU reviewed the BNFL proposal and determined that the justification for the change constituting the revision provides a basis for maintaining adequate safety. No requirement or commitment in the SRD has been deleted in changing the implementing standard.

3.3 Compliance with All Applicable Laws and Regulations

- **ISMP Text Change**

The ABAR did not identify any applicable law or regulation regarding the change in ISMP text. The RU concluded that the ABAR did not affect compliance with applicable laws and regulations.

- **Change to SRD**

The Implementation Guide G-10 CFR 835/B2 is the DOE guidance for 10 CFR 835 Final Rule dated December 14, 1993. The contractor is currently regulated under 10 CFR 835 Final Rule dated November 4, 1998 and the guidance for this regulation is not G-10 CFR 835/B2; it has been updated to "Occupational ALARA Program Guide, For Use With Title 10, Code of Federal Regulations, Part 835, Occupational Radiation Protection" DOE G 441.1-2 issued March 17, 1999. The revised guidance, which states that it was "formerly G-10 CFR 835/B2," reflects that change in the regulatory framework. Therefore, the implementing standard selected by BNFL does not ensure consistency with the current requirements of 10 CFR 835.

Specific examples of inconsistencies between the old implementation guide (G-10 CFR 835/B2) and the current 10 CFR 835 include:

1. ALARA training – The old implementation guide references 10 CFR 835.902 and 835.903 which have been removed from the revised 10 CFR 835.
2. Contamination limits – The old implementation guide references Table 2-2 of the DOE RadCon Manual. Table 2-2 conflicts with the 10 CFR 835 revision, Appendix D for total tritium. No total tritium value is given in the 10 CFR 835 revision. The DOE RadCon Manual gives a value of 10,000 dpm/100 cm² for both total and removable (total values not appropriate).
3. Definition – The definition of "controlled area" in the old implementation guide has additional criteria beyond the current definition in the revised 10 CFR 835.

Specific excerpts from Section I of G-10 CFR 835/B2 cited in the ABAR remain the same in the current guidance (DOE G441.1-2). However, the RU cannot endorse an ABAR that advocates the use of superseded federal regulations.

3.4 Conformance to Top-Level Standards

- **ISMP Text Change**

The proposed ABAR identified three applicable Top-Level Standards, 4.1.5.3, "Design Documentation", 4.2.3.1 "Radiation Protection Practices", and 4.2.3.2, "Radiation Protection Features", affected by the text change in Section 3.9.2.1 of the ISMP. The change to the ISMP does not compromise conformance to these standards.

- **Change to SRD**

The BNFL proposal identified Top-Level Standard, 2.1, "Individual" (Radiological and Nuclear Safety Standards) and Table 1 in support of Safety Criterion 2.0-3. BNFL stated that "The regulatory basis for Safety Criterion 2.0-3, WAC 246-221-060 (1)(a), comports with this top-level safety standard."

The RU reviewed the BNFL ABAR and determined that the proposed change to the SRD does not compromise conformance to the Top-Level standards.

3.5 Consistency within the SRD

- **ISMP Text Change**

The RU reviewed the implementing codes and standards used in the SRD and found that the ISMP Section 3.9.1.2 was cited for Safety Criterion 2.0-3 only. The RU evaluation concluded that consistency within the SRD was maintained with this change.

- **Change to SRD**

The RU reviewed the implementing codes and standards used in the SRD and found that G-10 CFR 835/B2 is cited as an implementing standard for Safety Criterion 5.3-2 also. The RU found that BNFL has been consistent in using this implementing standard to address implementation of an ALARA program in the SRD. However, as already noted in section 3.3 of this evaluation, G-10 CFR 835/B2 is tied to an outdated version of 10 CFR 835.

3.6 Consistency with Other Submittals

BNFL's current Radiation Protection Program (RPP) document, prepared to demonstrate compliance to 10 CFR 835, is based on the Final Rule dated December 14, 1993. The RPP shall be compliant with 10 CFR 835 dated November 4, 1998. At present, G-10 CFR 835/B2 is cited in the BNFL RPP; it is noted that these citations need to be updated to DOE G 441.1-2 to avoid a potential noncompliance with 10 CFR 835.3(a). Future RPP submittals will not be approved if they include citations to G-10 CFR 835/B2 rather than current guidance, as this would introduce inconsistencies with requirements of 10 CFR 835.

4.0 CONCLUSION

The RU concluded that the proposed ABAR demonstrated reasonable assurance that the health and safety of the public and workers would not be endangered by the proposed amendments, and that the proposed amendments would not have a significant effect on the environment. However, the proposed change to the SRD does not ensure compliance with applicable laws, regulations, and requirements. The ABAR proposes use of G-10 CFR 835/B2 as the implementing standard for Safety Criterion (SC) 2.0-3. G-10 CFR 835/B2 was developed for, and references, an outdated version of 10 CFR 835. The RU cannot endorse the use of superceded federal regulations. Therefore, the proposed ABAR is disapproved.